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This is the third in a series of quarterly newsletters designed to inform growers in Contra Costa County about issues important to the Agricultural community. We welcome your questions and comments about any topics in this newsletter as well as suggestions for future newsletters. Contact us at:

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The Medfly Threat: 1910 and Now

Most people think that the Medfly (Mediterranean Fruit Fly) has been a problem in California only for the last few decades. It hit the national news in 1982 when Governor Jerry Brown faced an infestation of Medfly in the San Francisco Bay area. He knew it was vital to eradicate it in order to protect California's agricultural industry. He approved quarantines to prevent infested fruit from spreading the Medfly any further and authorized aerial spraying using a malathion and molasses bait mixture. This program proved to be successful although highly controversial.

Actually, the Medfly has been a problem in California for nearly one hundred years. In the summer of 1910, Medfly was first found near Honolulu on the island of Oahu in the territory

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The Mediterranean Fruit Fly (Medfly)

of Hawaii (before Hawaii was a state). The Hawaiian horticultural authorities officially notified the California State Commisioner of Horticulture about the find in October of 1910.

Researchers at the time believed Medfly was introduced into Hawaii in infested fruit from Australia or New Zealand at least two years before its discovery on Oahu. After the initial find, it spread rapidly from the lower cultivated areas of the island into the wild guavas that grow all over the islands and produce ripe fruit year round. By 1911, Medfly had also been found on the island of Kauai, and shortly thereafter, on the rest of the islands.

Not long after the report first reached the California State Commisioner of Horticulture, infested fruit from Hawaii began to arrive at the port of San Francisco. The authorities were in a panic. As one researcher put it, "as long as the fly is in the Hawaiian Islands, California will have a continual fight to prevent its introduction...one single blunder, and the pest may gain an entrance".

The threat of introduction was very real. Tourists who visited Hawaii would go through Honolulu where the steamer ships docked. Inspection of local fruit markets showed that much of what was sold there was heavily infested. Tourists would often buy this infested fruit as



In 1911, a researcher in Hawaii reported he had "taken over one hundred live jumping maggots from a single wild guava not larger than an apricot".



Medfly in Hawaii soon spread into the wild guavas that grow all over the islands.

they were leaving and take it aboard ship with them. The steamship lines would also provision the ships at Honolulu with food that included infested fruit and vegetables bought locally.

In June 1911, an official quarantine was established in California against all fruits from Hawaii, except pineapples and bananas which were believed not to be hosts for Medfly. The crisis was a wake up call for the California horticultural authorities. They realized that California was in serious danger from exotic pests that could be hidden in shipments coming from anywhere at any time.

So, in December of 1911, California passed a general quarantine law requiring shipments of plant material to be marked to identify where the plants were grown. This gave inspectors some idea of what pests and diseases to look for when checking a shipment. Other provisions of the law gave state officials the authority to inspect shipments, to hold infested plant material under quarantine, and to be notified when shipments were arriving at the port. The law was one of the first of its kind in the United States.

At that time, there were no national plant quarantine laws in existence to protect the United States agriculture industry from dangerous

pests and diseases known to be common in certain foreign countries. Shipments of nursery stock, seed, and other plant material were able to enter the United States without restriction or the notification of horticultural authorities. Also, inspection of plant material was typically done at the shipments's destination rather than at the port of entry. An infested shipment could enter the United States at the port of New York and travel by train to California, scattering pests all along the way.

California horticultural authorities believed that infested shipments needed to be caught before the damage was done, so they lobbied hard in Washington. Finally, in August 1912, Congress passed the National Quarantine Law to restrict the importation of plant material into the United States. The law prohibited entry of nursery stock without a permit and certificate of inspection, required notification when shipments entered the country, and established marking standards. It also allowed for the placement of quarantines to restrict the entry and movement of fruits and vegetables from infested areas both within and outside of the United States.

The California horticultural authorities were not content to simply pass laws against the Medfly



Japanese Beetle, a serious exotic pest that infests the eastern half of the United States, was believed to have entered in a shipment of iris bulbs prior to the passage of the National Ouarantine Law in 1912.



The port of Honolulu around 1910.

threat in Hawaii. They wanted to try to reduce the amount of infested fruit that was arriving in California ports. They knew that eradication of the Medfly in the Hawaiian islands was impossible because of the wild guava host trees and the steep terrain. However, they wanted to do whatever they could to keep infested fruit off the steamships and away from California.

They started by getting some of the steamship companies to agree to destroy any remaining fruits and vegetables in their stores before they docked in San Francisco. California horticultural inspectors, who were also empowered by the Territory of Hawaii, were placed at the port of Honolulu to check ship provisions, cargo, and passenger baggage. The steamship companies cooperated by having provisions on their tickets requiring passengers to agree to have their baggage searched for fruit.

California authorities thought it might be possible to do something in Honolulu itself to reduce the amount of Medfly-infested produce for sale to departing tourists. They funded efforts to inspect local markets and burn any infested fruit and vegetables they found. They also attempted to reduce the Medfly population within Honolulu

by funding a program to collect and incinerate householder's backyard fruit. All this was very expensive and not completely successful.

Even back at the turn of the twentieth century, researchers were investigating new ways to monitor and control exotic pests like Medfly. In the early 1900's, Australian experts discovered that male Medflies were attracted to kerosene. They made Medfly traps with a deep pie tin containing kerosene under a tin cover. Unfortunately, the bait didn't last long because it volatilized too quickly. Experiments at the time tried to figure out what types of oils were the most effective and whether variables like trap color mattered in attracting the male Medfly.

Biological control for Medfly was also investigated. Many attempts were made to find and bring back Medfly predators and parasites from Africa where it originated. It proved to be extremely difficult to keep these insects alive during the six to seven week voyage back from Africa. The researchers were not successful in finding any biological control parasites or diseases that specifically attacked Medfly.



Medfly detection traps in 1910 were baited with kerosene. Today, pheromones are used.





A sterile Medfly mass rearing facility.

Some things have not changed much since 1910. Hawaii is still infested with Medfly and other serious pests. Infested fruit is regularly intercepted in shipments arriving at California ports of entry. Tourists continue to bring back fruits and vegetables from their vacations in spite of both state and federal quarantines. There are still no known parasites or diseases that are specific for Medfly.

Other things have changed quite a lot. Now, air travel makes it far easier for exotic pests from all over the world to be brought into California. Hawaii has a major fruit export industry which did not exist in the early part of the twentieth century. Back then, their only major commercial fruit exports were bananas and pineapples. Today, Hawaii also grows papayas, guavas, mangoes, passionfruit, mangosteen, lychee, rambutan, and star fruit, all of which are Medfly hosts.

Since 1910, better understanding of Medfly biology has led to improvements in both detection and control. Instead of using kerosene as a bait, modern detection traps use insect sex pheromones. Infestations today are treated, not with a lead arsenate and sugar spray, but with releases of sterile male Medflies to stop populations from breeding. There have also been many advances in methods of monitoring and treating shipments to eliminate pests. The horticultural authorities of 1910 would feel a great deal more hopeful today about our chances of keeping Medfly out of California.

Weights & Measures Current Issues

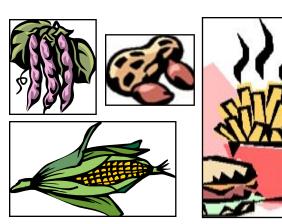
As the price of gas has risen sharply over the last few years, consumers have become more informed about ways to conserve gas and maximize fuel economy. One issue that has come about from this awareness is that a gallon of gas will expand and increase its volume at higher temperatures. This is known as "hot fuel".

The measurement standard used by the government measures gasoline at a temperature of 60° F. However, if the gasoline is hotter than that when it is pumped at the gas station, the thermal expansion can shortchange the consumer. One gallon of hot fuel will deliver less energy to the car than one gallon at 60° F. and the consumer will get less for their money.

The California Division of Measurement Standards is currently compiling results from a statewide survey of gas stations. For the past year, all counties in California have been measuring the temperature of the ambient air compared to the temperature of gasoline when they test the accuracy of the pumps. This will give DMS an idea of how much fuel temperature varies and what sorts of adjustment to the pumps must be made in order to compensate. The current results are now available online at the DMS (Division of Measurement Standards)



Inspection of the accuracy of a gas pump by a Weights & Measures Inspector.



Biodiesel may be made from used cooking oil or vegetable oils made from corn, soybeans, nuts, etc.

website (www.cdfa.ca.gov/DMS). They will be used by the California Energy Commission to make recommendations to the State Legislature about ways to ensure consumers are getting the proper amount of gas (and energy) that they are paying for. These recommendations will be made by the end of the year.

Another byproduct of growing fuel prices is an interest in alternative and renewable fuels. One of these alternative fuels, biodiesel, is growing in popularity and widespread usage. Biodiesel is a fuel made fully or partially from vegetable oils or natural fats. Sometimes it is mixed with diesel fuel as a blend. Biodiesel is required to be marked at the pump. For example, fuel marked "B20" has 20% biodiesel mixed in, while pure biodiesel would be marked "B100".

Biodiesel can be used in your current diesel engine with little or no modification, although the Division of Weights and Measures recommends doing more research before modifying your engine and fuel system, or using it exclusively in your vehicle. Individuals can even "brew" their own biodiesel. Equipment to make it can be made or bought commercially.

There has been significant growth in the amount of biodiesel sold in the past eight years. Two

states (Minnesota and Washington) have passed bills mandating all diesel fuel sold shall contain at least 2% biodiesel. It is also the only alternative fuel that has completed the Health Effects Testing requirements of the Clean Air Act. As production costs for biodiesel come down and oil prices go up, biodiesel will give consumers a lower cost and cleaner burning fuel alternative.

When it comes to recycling beverage containers (aluminum, glass, plastic), consumers have many options. Cities often provide residents with a separate trash can for recyclable waste. However, if those residents wanted to earn a bit of money for recycling, there are many businesses that will pay consumers for their recyclable beverage containers. These businesses can often be found in the parking lot of grocery stores or malls and will pay consumers for recyclable beverage containers by weight or count (by count only when requested and for fewer than 50 containers).

The minimum per pound payment rates for all recyclables are established by the California Department of Conservation. The rates are designed to reflect the CRV (California Refund Value) for the average number of containers in a pound of aluminum, glass, or plastic. The CRV was raised in 2007 to \$0.05 for containers under 24 ounces and \$0.10 for containers 24 ounces or greater.

The Contra Costa County Division of Weights & Measures conducts periodic undercover operations to check that recyclers are paying consumers the correct price for their containers. However, it is always a good idea to note how much you are getting per pound of material and compare it with the posted prices.

For questions about these topics and any others regarding Weights & Measures, please call our office.

Posting of Treated Fields

When a field has been treated with a pesticide, it is the responsibility of the operator of the property to post signs when necessary. The purpose of the signs is to inform persons who might enter the field that it is not safe. Posting signs may be required by the pesticide labeling or they may be required by regulation.

With a few exemptions, posting signs are required during the application and the reentry interval under any of the following conditions: for all greenhouse applications (unless the operator makes sure no one can enter it), for applications with reentry intervals greater than seven days, when "Danger" category or minimal exposure pesticides are applied through an irrigation system, when fumigants are applied to a field, and when posting is required by the pesticide label. Posting in this last case is not required when the operator can assure no one will enter or even walk within 1/4 mile of a treated field during the required time the sign would be posted.

In order to be effective, posting signs must be in place before the pesticide application begins and remain posted and legible throughout both the application and the restricted entry interval that follows. Signs must not be placed more than 24 hours before the application, nor remain for more than three days after the reentry interval has expired. If signs are left up all season, people



Posting signs around a treated field tells people it is not safe to enter.

learn to disregard them and end up ignoring all posting signs in the future.

Posting signs need to placed so that they are visible at all usual points of entry. This includes any roads, paths, and walkways into the treated field, as well as borders with any labor camps that might be adjacent to it. If there are no usual points of entry, signs must be posted at the corners of the field. If the field is next to an unfenced public right-of-way, such as a road, additional signs must be posted at each end of the field and at least every 600 feet along the border with the right-of-way.

The signs must be visible and easily readable from a distance of 25 feet and have the color of the words and symbols contrast sharply with the background. The signs must contain: a skull and crossbones near the center of the sign; the words "Danger", "Peligro", "Pesticides", and "Pesticidas" near the top of the sign; and the words "Keep Out" and "No Entre" near the bottom of the sign. If the reentry interval is greater than seven days, there must also be contained near the bottom of the sign: the date when entry can resume, the name of the operator of the property, and the field identification (if any). majority of workers speak some other language than English or Spanish, the other language may be substituted for the Spanish portion of the sign. Both fumigants and "Danger" or minimal exposure pesticides applied through an irrigation system have additional requirements. Contact our office for further information.



A posting sign that would be appropriate for most types of pesticide applications.

Contra Costa County Yesterdays

The California Fruit Exchange was a marketing cooperative of independant fruit growers that, at its peak, had around 1,000 members. It was organized in 1901 and had its headquarters in Sacramento. The California Fruit Exchange cooperative had many growers from the Sacramento and San Joaquin valleys as members, including growers from Contra Costa County. Eventually, it also came to represent exotic fruit growers in other parts of California, as well as Arizona, Hawaii, Chile, Mexico, and New Zealand. It had markets all over the United States and also in over twenty foreign countries.



Two of the California Fruit Exchange's Blue Anchor labels from Contra Costa County.



The trademark of the California Fruit Exchange was its Blue Anchor brand which appeared prominently on every label. Their labels often included the name of the region the fruit was grown in.

In the 1990's, the cooperative's members started drifting away to start their own packing houses and marketing companies. After nearly 100 years in business, the California Fruit Exchange finally closed its doors in 2000.



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